TOTAL AND TOXIC ARSENIC LEVELS IN NORTH SEA FISH

De Gieter Marjan, Martine Leermakers, Ramses Van Ryssen, Jeannine Noyen, Leo Goeyens and Willy Baeyens

Laboratory of Analytical and Environmental Chemistry, Vrije Universiteit Brussel, Pleinlaan 2, 1050 Brussel, Belgium
E-mail: mdgieter@vub.ac.be

Levels of arsenic contamination in muscle and liver tissue of 25 seafish and 4 shellfish species from the North Sea and the English Channel were determined. Analyses were done both by ICP-MS and HG-AFS in order to distinguish between the toxic fraction, consisting of As(III), As(V), MMA and DMA on the one hand and the non-toxic fraction, which includes mainly AB on the other hand.

Highest total As concentrations were found in lemon sole, dogfish, ray and witch. Median total As concentrations in these fish were higher than 20 $mg.kg^{-1}$ ww. Flatfish, dogfish and ray also contained the highest amounts of toxic As (>0.1 $mg.kg^{-1}$ ww). But despite this, these fish species did not show the highest toxic fractions (AsTox/AsT %). Six fish species, seabass, ling, john dory, pouting, dab and brill had toxic fractions higher than 2%. In many cases, the As concentrations found exceed the formal limits for As in seafood, but these formal limits are rather ambiguous. A classification reflecting the toxic potential of seafish was made using normalization.